

CLAIMS

What is claimed is:

1. A closure element for substantially closing an end of a tubular member, comprising:
a base sized and configured to fit within and substantially close a bore of a tubular member;
at least one engagement feature carried by the base and configured to be movable between at least a first position and at least a second position;
wherein the at least one engagement feature is sized and configured to cooperatively engage an associated wall structure of a wall of the tubular member when it occupies the first position and to disengage from the associated wall structure of the wall of the tubular member when it occupies the second position.
2. The closure element of claim 1, wherein the first position lies radially outward of the second position.
3. The closure element of claim 1, wherein the at least one engagement feature is resiliently biased toward the first position.
4. The closure element of claim 3, wherein the at least one engagement feature is resiliently biased toward the first position by way of an attachment wall extending between the at least one engagement feature and the base.
5. The closure element of claim 1, wherein the at least one engagement feature is configured to radially interfere with the associated wall structure when the closure element is disposed within the tubular member, the at least one engagement feature is aligned with the associated wall structure, and the at least one engagement feature occupies the first position.

6. The closure element of claim 1, wherein the at least one engagement feature comprises at least one outwardly extending radial protrusion.

7. The closure element of claim 6, wherein the at least one engagement feature comprises two engagement features.

8. The closure element of claim 7, wherein the two engagement features are circumferentially separated by about 180°.

9. The closure element of claim 7, further comprising:
a movable structure corresponding to each of the two engagement features;
wherein the movable structures are configured to facilitate movement of the two engagement features between the first position and the second position.

10. The closure element of claim 9, wherein each of the movable structures is sized and configured to at least partially accept at least one of a person's finger and thumb.

11. The closure element of claim 9, wherein each of the movable structures include outer radial surfaces that are sized and configured to substantially conform to the bore of the tubular member.

12. The closure element of claim 9, further comprising at least one of a locking structure and a biasing element disposed between the movable structures.

13. The closure element of claim 9, wherein each of the movable structures are attached to the body of the closure element by an attachment wall.

14. The closure element of claim 13, wherein the attachment wall is resilient.

15. The closure element of claim 1, wherein the at least one engagement feature comprises at least one aperture.
16. The closure element of claim 15, wherein the at least one engagement feature comprises two engagement features.
17. The closure element of claim 16, wherein the two engagement features are circumferentially separated by about 180°.
18. The closure element of claim 16, further comprising:
a movable structure corresponding to each of the two engagement features;
wherein the movable structures are configured to facilitate movement of the two engagement features between the first position and the second of position.
19. The closure element of claim 18, wherein each of the movable structures are sized and configured to at least partially accept at least one of a person's finger and thumb.
20. The closure element of claim 18, wherein each of the movable structures include outer radial surfaces that are sized and configured to substantially conform to the bore of the tubular member.
21. The closure element of claim 18, further comprising at least one of a locking structure and a biasing element disposed between the movable structures.
22. The closure element of claim 18, wherein each of the movable structures are attached to the body of the closure element by an attachment wall.
23. The closure element of claim 22, wherein the attachment wall is resilient.
24. The closure element of claim 1, wherein the closure element comprises plastic.

25. The closure element of claim 1, wherein the closure element is sized and configured to fit substantially within the bore of the tubular member.

26. The closure element of claim 1, wherein the closure element is sized and configured to fit entirely within the bore of the tubular member.

27. The closure element of claim 1, wherein each of the at least one engagement feature is resiliently cantilevered from the base of the closure element.

28. A container, comprising:
a tubular member having an outer surface and an inner surface defining a wall therebetween;
wherein the inner surface defines a bore, the bore extending between a first end and a second end;
an associated wall structure formed generally on the wall of the tubular member proximate the first end thereof; and
a closure element disposed at least partially within the bore of the tubular member proximate the first end thereof, the closure element comprising:
a base sized and configured to fit within and substantially close a bore of a tubular member; and
at least one engagement feature carried by the base and configured to be movable between at least a first position and at least a second position;
wherein the at least one engagement feature is sized and configured to cooperatively engage an associated wall structure of a wall of the tubular member when it occupies the first position and to disengage from the associated wall structure of the wall of the tubular member when it occupies the second position; and
wherein the at least one engagement feature occupies the first position and engages the associated wall structure.

29. The container of claim 28, wherein the first position lies radially outward of the second position.

30. The container of claim 28, wherein the at least one engagement feature is resiliently biased toward the first position.

31. The container of claim 30, wherein the at least one engagement feature is resiliently biased toward the first position by way of an attachment wall extending between the at least one engagement feature and the base.

32. The container of claim 28, wherein the at least one engagement feature is configured to radially interfere with the associated wall structure when the closure element is disposed within the tubular member, the at least one engagement feature is aligned with the associated wall structure, and the at least one engagement feature occupies the first position.

33. The container of claim 28, wherein:
the at least one engagement feature of the closure element comprises at least one outwardly extending radial protrusion; and
the at least one associated wall structure comprises an aperture formed in the wall of the tubular member.

34. The container of claim 33, wherein:
the at least one engagement feature comprises two engagement features; and
the two engagement features are circumferentially separated by about 180°.

35. The container of claim 34, further comprising:
a movable structure corresponding to each of the two engagement features;
wherein the movable structures are configured to facilitate movement of the two engagement features between the first position and the second position.

36. The container of claim 35, wherein each of the movable structures is sized and configured to at least partially accept at least one of a person's finger and thumb.

37. The container of claim 35, wherein each of the movable structures include outer radial surfaces that are sized and configured to substantially conform to the bore of the tubular member.

38. The container of claim 28, wherein:
the at least one engagement feature comprises at least one aperture; and
the associated wall structure comprises at least one inwardly extending radial protrusion formed on the wall of the tubular member.

39. The container of claim 38, wherein
the at least one engagement feature comprises two engagement features; and
the two engagement features are circumferentially separated by about 180°.

40. The container of claim 39, further comprising:
a movable structure corresponding to each of the two engagement features;
wherein the movable structures are configured to facilitate movement of the two engagement features between the first position and the second position.

41. The container of claim 40, wherein each of the movable structures are sized and configured to at least partially accept at least one of a person's finger and thumb.

42. The container of claim 40, wherein each of the movable structures include outer radial surfaces that are sized and configured to substantially conform to the bore of the tubular member.

43. The container of claim 28, wherein the closure element is sized and configured to fit substantially within the bore of the tubular member.

44. The container of claim 28, wherein the closure element is sized and configured to fit entirely within the bore of the tubular member.

45. The container of claim 28, wherein each of the at least one engagement feature is resiliently cantilevered from the base of the closure element.

46. The container of claim 28, further comprising:
at least another associated wall structure formed generally on the wall of the tubular member proximate the second end thereof;
another closure element, the another closure element disposed at least partially within the bore of the tubular member proximate the second end of the tubular member, the another closure element comprising:
a base sized and configured to fit within and substantially close a bore of a tubular member; and
at least one engagement feature carried by the base and configured to be movable between at least a first position and at least a second position;
wherein the at least one engagement feature is sized and configured to cooperatively engage the at least another associated wall structure of a wall of the tubular member when it occupies the first position and to disengage from the at least another associated wall structure of the wall of the tubular member when it occupies the second position; and
wherein the at least one engagement feature of the another closure element occupies the first position and engages the at least another associated wall structure.

47. The container of claim 46, wherein the at least one engagement feature of the another closure element is resiliently biased toward the first position.

48. The container of claim 47, wherein the at least one engagement feature of the another closure element is resiliently biased toward the first position by way of an attachment wall extending between the at least one engagement feature and the base.

49. The container of claim 46, wherein:
the at least one engagement feature of the another closure element comprises at least one aperture; and
the at least another associated wall structure comprises at least one inwardly extending radial protrusion formed on the wall of the tubular member.

50. The container of claim 46, wherein:
the at least one engagement feature of the another closure element comprises at least one outwardly extending radial protrusion; and
the at least another associated wall structure comprises an aperture formed in the wall of the tubular member.

51. The closure element of claim 46, wherein the at least one engagement feature of the another closure element is configured to radially interfere with the at least another associated wall structure.

52. The container of claim 46, wherein:
the at least one engagement feature of the another closure element comprises two engagement features; and
the two engagement features of the another closure element are circumferentially separated by about 180°.

53. The container of claim 52, further comprising:
a movable structure corresponding to each of the two engagement features of the another closure element;

wherein the movable structures of the another closure element are configured to facilitate movement of the two engagement features of the another closure element between the first position and the second position.

54. The container of claim 53, wherein each of the movable structures of the another closure element are sized and configured to at least partially accept at least one of a person's finger and thumb.

55. The container of claim 53, wherein each of the movable structures of the another closure element include outer radial surfaces that are sized and configured to substantially conform to the bore of the tubular member.

56. The container of claim 46, wherein both of the closure element and the another closure element are sized and configured to fit substantially within the bore of the tubular member.

57. The container of claim 46, wherein both of the closure element and the another closure element are sized and configured to fit entirely within the bore of the tubular member.

58. The container of claim 46, further comprising at least one of a locking structure and a biasing element disposed between the movable structures of at least one of the closure element and the another closure element.

59. The container of claim 28, wherein the tubular member comprises at least one of paper, cardboard, plastic, aluminum, and steel.